

BIOGRAPHICAL SKETCH

NAME Pieter Poolman	POSITION TITLE Investigator		
eRA COMMONS USER NAME PPOOLMAN@ENGINEERING.UIOWA.EDU			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Stellenbosch, South Africa	B.Eng.	1996	Engineering
University of Stellenbosch, South Africa	M.Eng.	1998	Engineering
University of Texas, Austin	Internship	1999	Engineering
University of Stellenbosch, South Africa	Ph.D.	2003	Engineering
University of Iowa, Iowa City	Internship	2004	Traffic Psychology
Electrical Geodesics, Inc., Eugene	Internship	2008	Neuroscience

Research and Professional Experience

1997-1998: Research Assistant, Institute of Transportation Technology, University of Stellenbosch.
 1998-1999: Research Engineer, Center of Transportation Research, University of Texas.
 2000-2002: Research Engineer, Institute of Transportation Technology, University of Stellenbosch.
 2003-2004: Post Doctoral Researcher, Operator Performance Laboratory, University of Iowa.
 2004-2008: Scientist, Electrical Geodesics, Inc.
 2008-present: Research Scientist, University of Iowa
 2010-present: Health Science Specialist, Iowa City Department of Veterans Affairs (VA) Medical Center.

Selected Publications

Schnell, T.; Lee, J.; Phohom, T.; Lee, Y.; Poolman P. (2002). *Determining And Assessing Level of Fun and Workload Based On Physiological Patterns*. Final Report, Honda R&D Americas, ITR, Detroit Office, 1000 Town Center, Suite 2050, Southfield, MI 48075.
 Poolman, P.; Bester C.J. (2003). *Towards an Experimental Platform for Future Driver Behavior Research based on the Integration of Engineering and Neuroscientific Know-How*. Proceedings of the 82nd Annual Meeting of the Transportation Research Board, Washington D.C.
 Poolman, P.; Tucker, D.M.; Luu, P.; Schnell, T.; Aktan, F. (2005). *An Experiment to Probe Brain Responses to Driver Information Systems*. Proceedings of the 1st International Conference on Augmented Cognition in Las Vegas, USA.
 Tucker, D.M.; Poolman, P.; Luu, P. (2005). *On-line Corrections of Artifacts in Cognitive State Gauges*. Proceedings of the 1st International Conference on Augmented Cognition in Las Vegas, USA.
 Russell, G.S.; Eriksen, K.J.; Poolman, P.; Luu, P.; Tucker, D.M. (2005). *Geodesic Photogrammetry for Localizing Sensor Positions in Dense-Array EEG*. Clinical Neurophysiology 116: 1130-1140.
 Salman, A.; Turovets, S.; Malony, A.; Poolman, P.; Davey, C.; Eriksen, K.J.; Tucker, D.M. (2006). *Noninvasive Conductivity Extraction for High-Resolution EEG Source Localization*. Advances in Clinical Neuroscience and Rehabilitation 6(1): 27-28.
 Turovets, S.; Salman, A.; Malony, A.; Poolman, P.; Davey, C.; Tucker, D.M. (2006). *Anatomically Constrained Conductivity Estimation of the Human Head Tissues in Vivo: Computational Procedure and Preliminary Experiments*. World Congress on Medical Physics and Biomedical Engineering in Seoul, South Korea.
 Schnell, T.; Poolman, P.; Macuda, T. (2006). *Toward the "Cognitive Cockpit": Flight Test Platforms and Methods for Monitoring Pilot Mental State*. Proceedings of the 2nd International Conference on Augmented Cognition, San Francisco, USA.
 Schnell, T.; Macuda, T.; Poolman, P.; Keller, M. (2006). *Workload Assessment in Flight Using Dense-Array EEG*. Proceedings of the 25th Digital Avionics Systems Conference, Portland, USA.

- Poolman, P.; Frank, R.M.; Bell, R.M.A.; Tucker, D.M.; Luu, P. (2006). *Advanced Integrated Real-time Artifact Removal Framework*. In D.D. Schmorow, K.M. Stanney, L.M. Reeves (Eds.), *Foundations of Augmented Cognition* (pp. 102-110). San Ramon: Falcon Books.
- Poolman, P.; Frank, R.M.; Luu, P.; Pederson, S.; Tucker, D.M. (2008). *A Single-Trial Analytic Framework for EEG Analysis and its Application to Target Detection and Classification*. *NeuroImage*, 42:787-798.
- Poolman, P.; Turovets, S.I.; Frank, R.M.; Russell, G.S. (2008). *Instrumentation and Signal Processing for Low-frequency Bounded-EIT Studies of the Human Head*. IEEE International Instrumentation and Measurement Technology Conference, Victoria, Canada.
- Turovets, S.I.; Poolman, P.; Salman, A.; Malony, A.D.; Tucker, D.M. (2008). *Conductivity analysis for high-resolution EEG*. Proceedings of the IEEE International Conference on Biomedical Engineering and Informatics (BMEI).
- Poolman, P.; Frank, R.M.; Turovets, S.I. (2008). *Modified lock-in detection for extraction of impressed EEG signals in low-frequency bounded-EIT studies of the human head*. Proceedings of the IEEE International Conference on Image and Signal Processing (CISP).
- Poulsen, C.; Luu, P.; Crane, S.M.; Quiring, J.; Poolman, P.; Tucker, D.M. (submitted). *Clues to Neural Mechanisms of Self-Evaluation in Anxiety and Depression*. *Journal of Abnormal Psychology*
- Poolman, P.; Schnell, T.; Melzer, J.E.; Robbins, S. (accepted). *The Cognitive Pilot Helmet: enabling pilot-aware, smart avionics*. SPIE Defense, Security, and Sensing Conference, Orlando, USA.

Scientific and Professional Societies

- 2004 – 2008: Member of the Transportation Research Board (TRB) Committee for Vehicle User Characteristics (AND10), National Research Council.
- 2007 – present: Member of the Human Factors and Ergonomics Society (HFES) Augmented Cognition Technical Group.
- 2007 – present: Reviewer for *NeuroImage* (journal).

Presentations

- 2007 Plenary speaker at the 44th Annual Rocky Mountain Bioengineering Symposium, Denver, CO.

Awards

- 1996 ECSA (Engineering Council of South Africa) Medal for Best B.Eng. Graduated by Merit at University of Stellenbosch
- 1996 ESKOM Prize for Best B.Eng. Graduated by Merit in South Africa
- 1997 NRF (National Research Foundation South Africa) Fellowship for Master's studies
- 1999 IRF (International Road Federation) Fellowship for Exchange Program at University of Texas at Austin
- 1999 NRF (National Research Foundation South Africa) Fellowship for Ph.D. studies
- 2003 NRF (National Research Foundation South Africa) Fellowship for Post Doctoral studies at the University of Iowa
- 2006 2nd Annual Foundations of Augmented Cognition Award Recipient

Selected Past and Current Projects

- 2007 – 2008: Office of Naval Research (ONR) Physiological-based Tools for Virtual Environment Fidelity Design Guidance: Development of training assessment and guidance tools that utilize operator behavior and physiology to determine virtual environment (VE) effectiveness and transfer of training.
- 2008 – 2009: Rockwell Collins Pilot Helmet Sensor Instrumentation: Integration of a physiological-based sensor system (EEG, head and eye tracking, oxymetry, etc.) into an aviator helmet for measuring physiological and cognitive states.
- 2009 – present: Department of Veterans Affairs Center of Excellence for "The Prevention and Treatment of Visual Loss". Role: Investigator.